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Annual Report of the United States Geological Survey, 1889-90. Part I.[6]—This quarto volume of 757 pages constitutes a record of the geological work of the survey for the years 1889–90. It comprises the report of the Director, giving a general account of the progress of the work during those years, appended to which are the administrative reports of the chiefs of branches and divisions, and two scientific papers by members of the survey. Both of these papers, the first by Mr. W. J. McGee on the Geology of Northeastern Iowa, and the second by Mr. A. J. Phinney, on Natural Gas Districts in Indiana, are the result of observations extending through a number of years.

The illustrations are numerous and excellent.

The Report of the Death Valley Expedition.[7]—This report is No. 7, of the series "North American Fauna" published by the U. S. Agricultural Department. It embraces the following special reports. Birds by Dr. A. K. Fisher; Reptiles and Batrachians by Dr. Leonard Stejneger; Fishes by Dr. C. H. Gilbert: Insects by Dr. C. V. Riley assisted by Drs. S. W. Williston, P. R. Uhler and Lawrence Bruner; Molluscs by Dr. R. E. C. Stearns; Desert Trees and Shrubs by Dr. C. H. Merriam; Desert Cactuses and Yuccas by Dr. C. H. Merriam; and the Localities by T. S. Palmer.

The expedition was under the direction of Dr. C. H. Merriam, Director of the Department of Animal Industry, who deserves much credit for the inception and execution of the plan. As a report of a single exploration, it is second to none of those sent out at various times by the Government, if thoroughness of work and importance of results to geographic, climatic, and hypsometric distribution be considered. The report on Mammalia which is yet to be issued, will be by Dr. Merriam, and we may anticipate that much of interest will be brought to light by its author, who is here in his favorite field.

The geographic distribution of the numerous species met with, is stated in terms of the system already adopted by Dr. Merriam in his report on the distribution of life in Arizona.

In this system Dr. Merriam[8] discards the usual divisions, which were first proposed by Baird, added to by Cope, and divided by Verrill and Allen, which correspond in great measure with the geological divisions of the continent, and which are in part divided by lines approximately meridianal. He regards the primary faunal divisions as corresponding in great measure with parallels of latitude. Thus his Sonoran region includes the Sonoran and Austroriparian of Cope, which thus extends from the Pacific to the Atlantic Ocean. But he recognizes the two divisions as of distinct though subordinate value, calling them respectively, the arid and humid districts. He does not adopt the Pacific nor the central regions. Dr. Merriam admits that his system does not express the relations of the aquatic vertebrates. But a system which does not take these into account must be defective. Moreover it is not difficult to show that the Batrachia and Reptilia as well as the fishes sustain the system of Baird and Cope, and Dr. J. A. Allen has shown in a review of Dr. Merriam's paper (published in the Auk) that the birds do also. The geologic history of the continent has had everything to do with the origin of this distribution of life, so that the system which conforms to it is likely to be the correct one.

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[6] Eleventh Annual Report of the United States Geological Survey to the Secretary of the Interior, 1889–90. By J. W. Powell, Director, Part I, Geology, Washington, 1891.

[7] The Death Valley Expedition: A Biological Survey of parts of California, Nevada, Arizona and Utah. Part II, North American Fauna, No. 7. Washington, 1893.

[8] The Geographic Distribution of Life in North America with special Reference to the Mammalia; Proc. Biol. Soc., Washington, VII, p. 11. April, 1892.

In regard to the birds observed during the Death Valley Expedition of 1891, Mr. A. K. Fisher writes as follows:

"Baird's woodpecker (*Dryobates scalaris bairdii*) was quite common among the tree yuccas on the Mohave Desert at Hesperia, and its range was extended northward to Vegas Valley, Nevada, and the valley of the Santa Clara, in southwestern Utah, by Dr. Merriam. The vermillion fly-catcher also was secured in the same valley, though previously unknown north of Fort Mohave, Arizona. The Texas nighthawk (*Chordeiles texensis*) was found to be a common summer resident in all the valleys east of the Sierra Nevada from Owens Valley, California, to St. George, Utah, where Dr. Merriam secured the eggs. It was taken also in the San Joaquin Valley, California, near Bakersfield. Scott's oriole (*Icterus parisorum*) is another species whose range was carried northward from a short distance above our southern border in California to about latitude 38°, where it was common in places among the tree yuccas, and also on the slopes of some of the desert ranges as high as the junipers and piñons. Costa's humming-bird (*Claypte costæ*) was very common whever water occurred throughout the desert region, ranging northward nearly to latitude 38°, and eastward to the Beaverdam Mountains, Utah. Its nest was frequently found in the low bushes and cactuses on the hill sides near springs and streams.

"The discovery that the gray-crowned finch (*Leucosticte tephrocotis*) breeds in the southern Sierra and in the White Mountains is especially interesting both because its breeding range was previously unknown, and because no species of the genus had been recorded from the Sierra Nevada south of about latitude 40°, while the present species was common nearly to the 36th parallel.

" Most satisfactory results were accomplished in working out the distribution of Thurber's junco (*Junco hyemalis thurberi*) a recently described race whose range was not definitely known. In the Sierra Nevada it was common from the Yosemite Valley, the most northern point visited by any member of the expedition, to the southern end of the range, and in the desert ranges eastward to the Grapevine and Charleston Mountains, where its place was occupied, in winter, at least, by its more eastern representative, Shufeldt's junco. The little black-chinned sparrow (*Spizella atrigularis*) was found to be not an uncommon summer resident on the slopes of several of the desert ranges and also on the east slope of the Sierra Nevada as far north as Independence Creek in Kearsarge Pass. This was a great surprise, as heretofore the species has been recorded within our limits only along the southern border, and its presence was not suspected, until a specimen was taken in the Panamint Mountains in April.

" Le Conte's thrasher (*Harporhynchus lecontei*) contrary to our expectations, was a common resident throughout the principal desert valleys from Owens Valley at the east foot of the Sierra Nevada across southern California and Nevada to southwestern Utah, where it was found nearly to the summit of the Beaverdam Mountains. " Its range was found to correspond nearly with that of the curious bush *Larrea mexicana* in our limits.

An interesting result is the discovery that the California condor (*Cathartes californianus*) is not so rare nor so near to extinction as has been supposed. A considerable number of individuals were seen by members of the expedition, mostly on the eastern side of the southern Sierra Nevada. Now that bisulphide of carbon is taking the place of strychnia for the destruction of mammalian pests of agriculture, it is to be hoped that the slaughter of this magnificent bird will be stopped, and that it will continue to add dignity to the noble scenery in which it dwells, as long as the country itself continues.

The determinations and descriptions of the Reptilia and Batrachia of this report are the work of Dr. Stejneger of the U. S. National Museum, and they are accompanied by field notes by Dr. C. H. Merriam. In the work of Dr. Stejneger, we see the ornithologist in herpetology. The critical quality of the work both as to the structural characters, and the literature, is beyond all praise; but species splitting is carried to a length hitherto unknown in the science, and the nomenclature is reduced to a system which takes in all names, provided they got printed, no matter how.

The identification of some of Baird and Girard's type specimens, and hence species, is a service for which herpetologists will be grateful, and Dr. Stejneger places in the hands of naturalists the means of determining their value. That they will often disagree with his conclusions as to species, is to be expected. Thus by his own showing *Sceloporus magister* is not a different species from *S. clarkii*, although he thinks it is; nor *Hypsiglena texana* Stejneger sp. nov. from *H. ochrorhynchus;* nor *Bufo halophilus* from *B. columbiensis.* I have examined the series of Crotaphytes in the National Museum with the view of ascertaining the standing of the recently described *C. baileyi* Stejn. and *C. silus* Stejn., and I cannot see in them more than poorly defined local races of the *C. collaris* and *C. wislizenii* respectively. The same is true of *Callisaurus ventralis* Hallow., as compared with *C. dracontoides.* In nomenclature, we have all the nomina nuda of Fitzinger revived, and all the unclassical spellings of original authors carefully preserved. Thus we find Pituophis for Pityophis, Bascanion for Bascanium, and bi-seriatus for biseriatus. Such acumen directed to the proper spelling of names would be a material gain to science in this country.

Forty-four species of Reptiles were procured by the expedition, and twelve species of Batrachia. None of them are regarded as new[9] to science excepting a Rana, which is called *Rana fischerii.* This appears to be very close to the *R. onca,* with which it should be further compared. The notes on the habits of the species by Dr. Merriam are very interesting and add much to the value of the paper. Before passing to the fishes, I pause to correct a misapprehension into which Dr. Stejneger has fallen, and which involves the veracity of the writer of this review. In adopting the name *pipiens* for the *Rana virescens,* he remarks that Garman has shown that the former is the correct name, and that he is therefore not responsible "as one might be led to believe from Cope's treatment of the matter," for the use of the second name (*virescens*). The paragraphs in which the reasons for the employment of the name *virescens* are set forth in my Batrachia of North America, were copied directly from MS. furnished me by Mr. Garman. Mr. Garman changed his mind after the publication of my book.

The region explored is not rich in fishes, but a good many specimens and species were obtained. The most important result is the discovery of a new species of Cyprinodontidæ which is nearly related to the Oristias of the elevated Lake Titicaca of Peru, which is the type of a new genus called by Professor Gilbert, Empetrichthys. As in the Peruvian genus there are no ventral fins and no lateral line, and the very large pharyngeal bones are fused below. This fish inhabits the inhospitable waters of the Amargosa River, which, while not elevated like the Peruvian lake, flows through a region of similar geologic age. Another interesting discovery is that of the rare *Lepidomeda vittata* in a stream on the western side of the Colorado drainage in Nevada, far from the only locality previously known, which is the Colorado Chiquito of Arizona on the eastern drainage.

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[9] The new species described in the report are from adjacent regions.

In an introduction to the report on insects, Mr. Riley makes the following remarks:

"Taking first the Coleoptera, which represent by far the larger part of the collectings, they have for the most part been carefully compared with the national collection, and I have had the assistance, in the verifications, of Mr. M. S. Linell and Mr. E. A. Schwartz, both well acquainted with our North American Coleoptera. As the chief localities from which the beetles were obtained do not exceed seven, the list has been arranged in tabular series to prevent repetition of localities. This arrangement at once shows that the collection comprises some 258 species, representing 170 genera in 39 families. Of the total number of species arranged according to localities, twenty-eight (a) are of general distribution in North America, i. e., they cross the whole continent, and among them are six cosmopolitan species, while only a single species *Bradycellus cognatus* found in the Argus Mountains, belongs to the circumpolar fauna. About fifty of the species are widely distributed throughout the more arid regions of the west, and about twenty species belong more properly to the fauna of maritime or upper California. The bulk of these species, as will be noted, were collected in San Bernardino County. Deducting the three sets of species and a few others, e. g., the genera Homalota, Scopæus, Scymnus and Cryptophagus, of the distribution of which very little can be definitely said, there remain about 140 species which are more or less characteristic of the Sonoran fauna. Some nineteen species are undoubtedly new.

"In the Heteroptera the list represents merely the species that were readily determinable, while the balance, including the more interesting forms, have been referred to Mr. P. R. Uhler, of Baltimore, Maryland, who has kindly reported on them, with definitions of the new genera and species.

"In the Homoptera, as will be noticed, there are some interesting new species, especially in the family Psyllidæ, but until they are carefully compared I do not feel justified in making any remarks upon them, nor have I time just now to characterize the undetermined forms which I prefer to do in connection with the very many new species in the National Collection to which I have already given much study."

Mr. S. W. Williston prefaces a report on the Diptera as follows:

"That the larger part of the collection of Diptera from Death Valley and the adjoining regions sent me for determination by Professor Riley should be new to science is not strange, inasmuch as they are, for the greater part, members of families which have been but little studied in America. The collection is of considerable interest as adding three European or African genera hitherto unrecorded from America, among which the wingless Apterina is the most remarkable. After a careful search I have found it necessary to describe two new genera —one among the Dexiidæ, the other an Ephydrinid."

The Land and Fresh Water Shells were examined and reported on by Mr. Robert E. C. Stearns, who refers to the more important ones in the following language.

"The more interesting forms obtained were the two species heretofore referred to Tryonia, until recently regarded as obsolescent or absolutely extinct, but which were found to be living, as elsewhere remarked. *Helix magdalenensis,* another interesting species described from examples collected in the Mexican State of Sonora in 1889-90 by Mr. Bailey, of Dr. Merriam's Division of Biological Exploration, was detected by Fisher and Nelson several degrees of latitude farther to the north than the habitat of Bailey's original examples and at a very much higher altitude. This latter, by its presence at this northerly station, contributes to our previous knowledge and data bearing upon the relations between the geographical distribution of species and environmental conditions or influences; and two fresh water forms, not before known, were added to the Molluscan fauna of the region traversed by the expedition."

This report is one of the valuable results of the establishment of the Division of Animal Industry of the Agricultural Department. We hope that the recent reductions in the force of the Department by the present Secretary has not affected the efficiency of the Division, as science in general and Agriculture in some of its aspects, would materially suffer.—E. D. COPE.